

Amendments to the Specification

Please amend paragraph 35 as follows:

[0035] ALD processing system 100 includes a split-flow gas switching manifold 102, through which a neutral purge gas (from source 104 through valve 113) and one or more chemical sources (or process gasses) 106 and 108 may be delivered to reactor chamber 110. Neutral carrier gases may or may not accompany the chemical precursor. Within the chamber 110 is a heater assembly 112, upon which rests a semiconductor wafer 114. When both shut-off valves 116 and 118 are closed, and neutral purge gas flows through the reactor 110, baseline purge flow and pressure conditions are established. In general, the split-flow manifold can include one or more inject conduits to the reactor 110; and system 100 is illustrated with a dual inject.

Please amend paragraph 52 as follows:

[0052] Within the dual flow purge manifold ~~402~~, valve 405 may be configured to actuate below a relatively low pressure suitable for use during the exposure pulse. Valve 407, on the other hand, may be configured to actuate below a relatively high pressure, suitable for use during the purge period. The precise timing for these valves to be switched on and off may be in a range of times around 10 – 30 msec. The turn-on and turn-off times may not need to be nor want to be coincident with the turn-on and turn-off times of the exposure pulses. This allows for reliable software control for optimizing and minimizing the time between actual switchover between the exposure and purge flows within the reactor chamber 410. This is discussed further below, in developing the concept of optimal time-phased, multi-level flow using asynchronous flow concepts.